Mainframe Computer Operations Efficiency and Effectiveness Should Be Improved

May 2003

Reference Number: 2003-20-117

INSPECTOR GENERAL
for TAX
ADMINISTRATION

DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20220

May 20, 2003

MEMORANDUM FOR ACTING DEPUTY COMMISSIONER FOR MODERNIZATION
& CHIEF INFORMATION OFFICER

Gordon C. Milbourn III

FROM: Gordon C. Milbourn III
Acting Deputy Inspector General for Audit

SUBJECT: Final Audit Report - Mainframe Computer Operations Efficiency and Effectiveness Should Be Improved (Audit # 200220046)

This report presents the results of our review of mainframe computer operations. The overall objective of this review was to assess the efficiency and effectiveness of the Internal Revenue Service's (IRS) computing center mainframe computer operations.

The most critical tax administration and management information systems run on the mainframe computer systems located at the Detroit Computing Center (DCC), Martinsburg Computing Center (MCC), and Tennessee Computing Center (TCC). The Fiscal Year (FY) 2003 Enterprise Software and Computing Centers budget is $324.8 million, approximately 20 percent of the Modernization, Information Technology and Security (MITS) Services $1.6 billion budget, and includes funds for mainframe computer operations employees' salaries and benefits, computer hardware and software operations, and maintenance costs.

In summary, to identify ways to more efficiently and effectively use their resources, IRS management hired consultants to analyze the mainframe computer operations and initiated several improvement projects to address the consultants' recommendations, including the Triplex/Uniform Operating Environment (UOE) Project.[1] These projects should improve the efficiency and effectiveness of computing center operations.

However, the IRS could improve mainframe computer operations efficiency and effectiveness in the following ways:

[1] IRS management refers to the three computing center sites as the Triplex. The UOE is a framework for incorporating improvements and a common way of doing business across multiple locations and services.

- Strategic workforce planning has not effectively established the size of mainframe computer operations staffing. As of October 2002, the DCC, MCC, and TCC employed 686 employees and 82 contractors for mainframe computer operations. However, the MCC and TCC do not assign comparable numbers of staff to the Consolidated Computing Environment (CCE) systems,[2] although the workloads are approximately equal. Our analysis and discussions with management identified 66 IRS employee staff years and contractors that are not needed to complete the CCE and other mainframe computer operations workloads. Eliminating these staff years and contractors would save the IRS $18.9 million in salaries, benefits, and contractor costs over 3 years.
- The IRS does not use the computer industry's best practices to measure mainframe computer operations labor efficiency. As a result, IRS management cannot demonstrate to stakeholders how efficiently the computing centers use operations resources, and management cannot measure efficiency gains resulting from improvement projects.
- Modernization transition management activities have not ensured that the computing centers are ready to operate and maintain the modernization systems because resource requirements were not identified and approved timely. As a result, the FY 2003 budget did not include funds for 34 employee staff years and contractors, as well as $39.1 million for computer software licenses and maintenance costs, needed to operate and maintain the modernization systems.

We recommended that the Director, Enterprise Operations Services (EOS), improve strategic workforce planning and initiate actions to reduce the number of employee staff years and contractors to the target staffing levels. The Director should also develop automated mainframe computer operations efficiency measurement reports and include the measures in the MITS Services Balanced Measures and computing center strategic planning and budget process. In addition, the Acting Deputy Commissioner for Modernization & Chief Information Officer should ensure requirements for resources needed to operate the modernization systems are timely identified and incorporated into the budget request.

Management's Response: IRS management agreed to the recommendations presented in the report. Planned corrective actions include using identified industry best practices in the design of the Triplex/UOE Competency Based Organization, developing a detailed action plan to implement the Enterprise Computing Center, and distributing a comprehensive communications plan. Management will reduce the number of employee staff years and contractors to reach target staffing levels when the new organization structure is implemented. Management will also establish a task force to analyze existing measures and explore possibilities for future measures and automation of mainframe efficiency reports, and request funding for outside resources to help identify and implement industry best practices. In addition, management will ensure

[2] The CCE systems process tax returns and payments and provide real-time access to tax account information.

that the EOS and the Business Systems Modernization Office[3] (BSMO) collaborate to implement the End-to-End Performance Engineering and Capacity Planning Process, that the BSMO shares the performance and capacity data gathered and the models developed by the contractor with EOS Capacity Management, and that EOS Capacity Management timely identifies mainframe computer operations and resource requirements for the modernization systems and submits them into the budget process. Management's complete response to the draft report is included as Appendix V.

Office of Audit Comment: IRS management agreed to the recommendations presented in the report, but they believe we overstated the projected excess staffing levels in some cases. However, IRS management could not provide a better estimate of the number of employee staff years and contractors needed to complete the current EOS workload.

Copies of this report are also being sent to the IRS managers who are affected by the report recommendations. Please contact me at (202) 622-6510 if you have questions or Gary V. Hinkle, Acting Assistant Inspector General for Audit (Information Systems Programs) at (202) 927-7291.

[3] The BSMO is responsible for managing and coordinating the Business Systems Modernization Program.

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Mainframe Computer Operations Efficiency and Effectiveness Should Be Improved

Background

The Internal Revenue Service (IRS) Strategic Plan for Fiscal Years (FY) 2000-2005 includes a strategy to provide high-quality, efficient, and responsive information services through the Modernization, Information Technology and Security (MITS) Services organization. The MITS Services, Enterprise Operations Services (EOS) organization's mission is to provide efficient, cost-effective, secure, and highly reliable mainframe computing services for all IRS business entities and taxpayers.

The EOS' FY 2003 Enterprise Software and Computing Centers budget is $324.8 million, approximately 20 percent of the MITS Services $1.6 billion budget. The budget includes funds for mainframe computer (Tier I) operations employees' salaries and benefits, computer hardware and software operations, and maintenance costs.

Major tax administration and management information systems currently running on the mainframe computer systems include:

- The Master File.[1]
- Business Systems Modernization (BSM)[2] systems.
- Paper and electronic tax return and payment processing systems.
- On-line customer service and tax compliance databases and related access control systems.
- Financial and tax compliance management information systems.

This audit was conducted at the Detroit Computing Center (DCC) in Detroit, Michigan; the Martinsburg Computing Center (MCC) in Martinsburg, West Virginia; the Tennessee Computing Center (TCC) in Memphis, Tennessee; and the IRS Headquarters in New Carrollton, Maryland, from June 2002 to March 2003. The audit was conducted in accordance with *Government Auditing Standards*. Detailed information on our audit objective,

[1] The Master File is the IRS' database that stores various types of taxpayer account information, including individual, business, and employee plans and exempt organizations data.
[2] The BSM Program is modernizing the IRS' business processes and computer technology.

scope, and methodology is presented in Appendix I. Major contributors to the report are listed in Appendix II.

Management Initiatives Should Improve the Efficiency and Effectiveness of Mainframe Computer Operations

The Information Technology Management Reform Act[3] (also called the Clinger-Cohen Act) requires executive agencies to promote the effective and efficient operation of major information resources. EOS management recognizes that modernization systems, annual tax law changes, other IRS program changes, and improvement projects will cause mainframe computer workloads to increase. Also, they expect that computing center operations and maintenance budgets will not increase. Therefore, to identify ways to more efficiently and effectively use their limited resources, management hired consultants to analyze the mainframe computer operations. Since December 2000, IRS management has completed one major improvement project and started additional projects to improve the efficiency and effectiveness of mainframe computer operations. The projects that have the most significant impact include:

- Service Center Mainframe Consolidation (SCMC). The SCMC Project was completed in December 2000 and consolidated 10 IRS Campus[4] mainframe computer systems to computers at the MCC and TCC. The SCMC Project resulted in a positive return on the investment and the reassignment, resignation, or retirement of 630 mainframe computer operations employees. The SCMC is now called the Consolidated Computing Environment (CCE)[5] and, over the 10-year life of the computer systems, is expected to provide savings of $744 million.[6]

[3] Information Technology Management Reform Act, Pub. L. No. 104-106, Division E (1996).
[4] The campuses are the data processing arms of the IRS. The campuses process paper and electronic submissions, correct errors, and forward data to the computing centers for analysis and posting to taxpayer accounts.
[5] The CCE systems process tax returns and payments and provide real-time access to tax account information.
[6] Reported as cost avoidance – included maintenance, utilities, and floor space costs that the IRS would have spent if it had not consolidated the systems.

- Logical Partition[7] Consolidation. The SCMC Project created logical partitions in the CCE mainframes to independently operate and maintain separate tax account databases for each of the 10 IRS Campuses. The EOS started consolidating the logical partitions in 2002 and will complete the consolidation in 2004. The consolidation will reduce infrastructure and administration costs, standardize computer application deployment processes, and eliminate repetitive data movement.
- Triplex/Uniform Operating Environment (UOE).[8] This project will propose an Enterprise Computing Center (ECC) organization structure that will be competency based,[9] instead of geography based. The ECC structure will also flatten management layers, provide common first-line management for identical operations at the computing centers, and operate the three computing centers as a single corporate entity. EOS management plans to implement the Triplex/UOE reorganization in October 2003.
- Enterprise Workload Efficiency (EWE). The EWE Project is related to the Triplex/UOE Project, and the goal is to devise and implement ways to immediately maximize the use of the three computing centers' resources (e.g., remotely administer mainframe computer systems and data storage at one computing center from another location, and centralize scheduling). Management plans to pilot workload changes in early 2003.

[7] A Logical Partition is the division of a computer's processors, memory, and storage into multiple sets of resources so each set of resources can be operated independently with its own operating system and applications.
[8] EOS management refers to the three computing center sites as the Triplex. The UOE is a framework for incorporating improvements and a common way of doing business across multiple locations and services.
[9] A competency is a mission-focused grouping of related skills, knowledge, and functions that work together across the enterprise to accomplish common objectives.

- Enterprise Data Transfer (EDT). Starting in FY 2003, the EDT Project will improve efficiency by replacing manual magnetic tape exchanges between various IRS sites with electronic data transfers.

These projects should improve the efficiency and effectiveness of computing center operations. However, additional efforts are needed to more efficiently and effectively use mainframe computer operations resources and to ensure the computing centers are prepared to operate and maintain modernization systems.

Strategic Workforce Planning Needs Improvement and Industry Best Practices Are Not Used to Assess Mainframe Computer Operations Labor Efficiency

The Clinger-Cohen Act requires executive agencies to promote the efficient use of information resources and to quantitatively benchmark process performance against comparable processes and organizations in the public or private sectors in terms of cost, speed, productivity, and quality of outputs and outcomes. General Accounting Office internal control guidelines[10] cite human capital management as a control that will provide reasonable assurance that resources are used effectively and efficiently. The Internal Revenue Manual (IRM) includes strategic workforce planning policies and procedures for determining the numbers of staff years needed for efficient and cost-effective program accomplishment. Strategic workforce planning considers staffing allocations, program plans, technology and process changes, and other factors. The IRM also states that the Chief Information Officer and EOS management are responsible for the efficient and effective use of the automated information processing environment, including computing center personnel, systems, and applications.

Mainframe computer operations strategic workforce planning can be improved

The current computing center staffing levels were established when major systems were implemented and adjusted when processing requirements changed. The DCC, MCC, and TCC organization charts dated October 2002 listed 686 employees assigned to mainframe computer

[10] *Standards for Internal Control in the Federal Government*, GAO/AIMD-00-21.3.1, November 1999.

operations. The computing centers also employed 82 contractors for mainframe computer operations, with many performing duties comparable to those of IRS employees.

However, strategic workforce planning has not effectively established the mainframe computer operations staffing levels to ensure efficient use of staffing resources. For example, the CCE is one of several mainframe computer operations located at the MCC and TCC, and staffing levels were established during the consolidation project that was completed in 2000. A review of the CCE workloads and staffing levels indicated that the workloads are approximately equal between the two sites, but the staffing assigned to CCE operations are not comparable.

We reviewed CCE staffing by computing center operation (e.g., console operations, tape library, scheduling, database management, data storage management, etc.) and determined that the MCC and TCC conducted many operations similarly but staffed some operations differently. For example, one computing center had production controllers conducting certain duties and the other center had computer operators conducting the same duties. In addition, the computing centers split many employees' and contractors' responsibilities between the CCE and other computer operations (e.g., the Master File, other mainframe computer systems, midrange computer systems, etc.). Therefore, we were unable to determine the exact number of staff needed to conduct CCE operations. However, based on the staffing assigned only to CCE operations, we concluded that the TCC CCE workloads are being completed with the current staffing levels and that the MCC had 37 more employee staff years and contractors to complete a comparable workload. Table 1 illustrates the overall CCE staffing levels and the difference between MCC and TCC staffing.

Table 1: CCE Operations Staffing As of November 2002

	MCC	TCC	Difference
Employee Staff Years	171	106	
Contractors	11	39	
Total	182	145	37

Source: Organization charts, interviews with managers, and management documents.

The DCC, MCC, and TCC operate the Master File, BSM, and other mainframe computer systems, and the staffing for these systems was established in a similar manner. During discussions about Master File and other mainframe computer operations workloads and staffing, MCC and TCC management acknowledged that 17 employee staff years and 12 contractors are not needed for the current mainframe computer workloads. Eliminating the 66 employee staff years and contractors not needed for mainframe computer operations will save the IRS $18.9 million over 3 years (see Appendix IV). As of March 2003, management had released 14 contractors.

The need to reduce the mainframe computer operations staff size was originally identified in 2000 and again in 2002 by consultants that compared the IRS' computing center operations to commercial firm best practices. The consultants recommended that EOS management reduce operations staff in areas of high automation (e.g., magnetic tape operations and scheduling) by pooling operations staff and sizing operations staff based on the workload. Management acknowledged the consultants' findings and initiated the MITS Services Reorganization, the Triplex/UOE Project, and the EWE Project to address the consultant's recommendations.

However, strategic workforce planning has not resulted in reduced mainframe computer operations staffing because the computing centers have operated independently and staffing levels were driven by local management decisions and available labor budgets. For example, the MCC has followed a practice of hiring new employees as tape librarians, providing them technical training, and promoting them on a career path based on the Current Processing Environment (CPE) operating practices. Although

Automated Tape Libraries (ATL) mounted over 90 percent of the magnetic tapes used at the MCC and the MCC already employed 38 entry-level tape librarians, the MCC hired 15 new tape librarians in March 2002. The new employees were hired to fill positions from which management planned to promote incumbents. MITS Services management exempted the hiring from a general MITS Services-wide hiring and promotions freeze. During the audit, management acknowledged 12 of the 15 tape librarian staff years were not needed for operations.

Without effective strategic workforce planning, management cannot ensure mainframe computer operations efficiently use employee and contractor resources.

Measurement of the mainframe computer operations labor efficiency can be improved

EOS management uses automated tools to gather mainframe computer performance data that is used for day-to-day operations management, capacity planning, and performance measurement reports, including the MITS Services Balanced Measures. The Balanced Measures are used in the strategic assessment and budget process to measure accomplishment of MITS Services strategies and justify future budgets. A recent Treasury Inspector General for Tax Administration (TIGTA) audit of the Balanced Measures Program[11] reported that while management has made progress developing and reporting business results measures, and while management uses the measures to improve operations, the measures could be improved.

The Balanced Measures do not compare mainframe computer operations performance to industry best practices to measure how efficiently computer center resources are used. EOS management acknowledges the need to measure how efficiently resources are used, and they requested a consultant's proposal to prepare reports that measured performance against best practices. However, the FY 2003 EOS budget does not include funds to pay for the

[11] *Improvements in the Measures Program for Information Technology Services Would Further Increase Its Value to Stakeholders* (Reference Number 2003-20-069, dated March 2003).

consultant's services. MCC management manually prepared measurement reports that compared DCC, MCC, and TCC mainframe computer performance to industry averages and best practices. However, the MCC stopped preparing the reports for all three computing centers, and the DCC and TCC did not have the staff needed to continue manually preparing the reports. Development of the measures has not been a high priority.

Although MCC management had industry average and best practice labor efficiency metrics, the reports did not compare DCC, MCC, and TCC computing center staffing levels to industry averages. Therefore, the metrics have not been used to determine the optimum computing center staff sizes. Table 2 illustrates two operations efficiency measures that compare the actual computing center employee staff years and contractors to the estimated staffing the computing centers would use if these operations were staffed at the industry average rates.

Table 2: Comparison of Computing Center (i.e., DCC, MCC, and TCC) Staff Years to Industry Averages

1. Selected Efficiency Measure	2. Actual Computing Center Staffing	3. Mainframe Computer Capacity	4. Industry Average Staff Years per Unit of Capacity	5. Estimated Computing Center Staffing Based on Industry Averages (Col. 3 x Col. 4)
Console Operators per Million Instructions per Second (MIPS)[12] Used	129 Console Operators	6,512 MIPS	.0082 Console Operators per MIPS	53 Console Operators
Data Storage Managers per Mainframe Terabytes (TB)[13]	56 Data Storage Managers	129.5 TB	.7168 Data Storage Managers per TB	93 Data Storage Managers

Source: IRS mainframe computer capacity reports, organization charts, and industry averages identified by management.

Without management reports that include staffing efficiency metrics, EOS management cannot demonstrate to IRS stakeholders (e.g., the Department of the Treasury and the Congress) how efficiently they spend the computing center operations budget. Also, they cannot measure efficiency gains resulting from computing center mainframe computer improvement projects.

Recommendations

The Director, EOS, should:

1. Improve strategic workforce planning by using industry average and best practice metrics to assess the CCE,

[12] MIPS are a general measurement for mainframe computer processing capacity and cost (e.g., more MIPS for the money equals greater value).
[13] A terabyte equals approximately 1 trillion bytes.

Master File, BSM, and other mainframe computer workloads and determine the staffing levels needed for effective and efficient mainframe computer operations.

Management's Response: EOS management will include identified industry best practices in the design of the Triplex/UOE Competency Based Organization.

2. Initiate actions to reduce the number of employee staff years and contractors to the target staffing levels.

Management's Response: The Triplex/UOE Competency Based Organization structure will flatten existing layers of management, improve the span of control, and reduce technical and overhead support positions. EOS management developed a detailed action plan with key milestones to implement the ECC. It was distributed throughout the EOS organization to track progress. In addition, the EOS distributed a comprehensive communications plan to keep critical EOS managers and employees informed of upcoming organizational changes. EOS management will reduce the number of employee staff years and contractors to reach target staffing levels when the new organizational structure is implemented.

Office of Audit Comment: IRS management agreed to this recommendation, but they believe we overstated the projected excess staffing levels in some cases. However, IRS management could not provide a better estimate of the number of employee staff years and contractors needed to complete the current EOS workload.

3. Develop automated mainframe computer operations efficiency measurement reports and include the measures in the MITS Services Balanced Measures and computing center strategic planning and budget process.

Management's Response: The EOS will establish a task force to analyze existing measures and explore possibilities for future measures and automation of mainframe efficiency reports. A detailed action plan with key milestones will be developed and distributed to track progress, and the EOS will request funding for outside resources to help identify and implement industry best practices applicable to the IRS' operating environment.

The Computing Centers Risk Not Being Prepared to Operate and Maintain Modernization Systems

The Enterprise Life Cycle (ELC)[14] includes transition management guidance for BSM projects. The intent of transition management activities is to provide a disciplined transfer of BSM projects from the PRIME Contractor's[15] system development efforts to the IRS organization responsible for their long-term support and operation (e.g., computing centers). The transition management guidelines emphasize the need to timely identify support and operation requirements (e.g., computer hardware capacity and performance, software licenses and maintenance, operations staffing, etc.) during system development because the Federal Government budget planning and submission lead time is lengthy. The guidelines also require EOS participation to plan and budget for the required resources and ensure the computing centers are fully prepared to accept responsibility for supporting and operating the related systems.

EOS and BSM Office (BSMO)[16] management and the PRIME Contractor coordinate transition management. A recent TIGTA audit[17] of transition management reported the BSM project teams were not consistently following transition guidance and management was addressing the issue. However, transition planning has not ensured that the computing centers are ready to operate and maintain the modernization systems because the resource and performance requirements were not developed in time to be included in the FY 2003 computing center budgets. For example, the IRS presented its FY 2003 budget request to the Department of the Treasury in August 2001, but the operations and maintenance requirements for the Customer

[14] The ELC is the IRS' life cycle methodology for technology development projects. The ELC provides guidance for designing, developing, and supporting BSM projects and establishes a set of repeatable processes and a system of reviews that promote delivery of promised business results.
[15] The PRIME Contractor leads the private sector contractors that are the IRS' partners in the BSM Program.
[16] The BSMO is responsible for managing and coordinating the BSM Program.
[17] *Progress Has Been Made in Developing Transition to Support Guidance for Modernization Projects* (Reference Number 2002-20-146, dated August 2002).

Accounts Data Engine (CADE)[18] (scheduled, at the time of our field work, to start production in June 2003) were not approved until April and May 2002.

As a result, the FY 2003 EOS budget did not include funds for the additional employee staff years and contractors and infrastructure resources needed to operate and maintain the modernization systems in FY 2003. In addition to the CADE, other modernization systems that will require mainframe computer operations in FY 2003 include the e-Services,[19] Enterprise Data Warehouse-Custodial Accounting Project (EDW/CAP),[20] and Infrastructure Support Services (ISS).[21]

Management identified 57 IRS employee and contractor positions needed to operate and maintain the new systems and continue operations of the modernization systems already in production in FY 2003, increasing to 72 positions in FY 2004. However, EOS management has not funded 34 of the positions or $39.1 million for mainframe computer software licenses and maintenance in FY 2003. EOS management advised that the modernization system costs cannot be offset by reducing the CPE system costs because the current workloads will not be immediately transferred from the CPE to the modernization systems, and the retirements of the CPE will not start for several years.

Management did not believe the FY 2003 budget shortfall would delay the BSM system implementations in FY 2003 because they planned to use modernization funds (the Information Technology Investment Account) to pay for staff year and computer software operations and maintenance costs until they could be covered in future budgets. However, early in FY 2003 management

[18] The CADE will replace the Individual Master File and related Integrated Data Retrieval System components.
[19] The e-Services will provide web-based products and services that will change the way the IRS interacts with partners and customers.
[20] The EDW/CAP will provide IRS management with tax administration and internal management information, such as an automated revenue accounting and collections allocation system.
[21] The ISS will provide the infrastructure (e.g., computer hardware and operating system software) for BSM systems.

determined that the modernization funds could not be used for operations and maintenance costs. Management advised that, in the near term, existing employees and contractors would cover the staff year requirements, and EOS spending plans would be reprioritized to cover the software licenses and maintenance costs.

In the long term, ineffective transition planning could result in the computing centers not operating and maintaining the modernization and CPE systems effectively. As a result, the modernization systems' performance and usefulness could become degraded, and additional negative publicity for the BSM program could result.

Recommendation

The Acting Deputy Commissioner for Modernization & Chief Information Officer should:

4. Ensure mainframe computer operation and maintenance resource requirements for modernization systems are timely identified and incorporated in the EOS budget request.

Management's Response: The EOS will collaborate with the BSMO to implement the End-to-End Performance Engineering and Capacity Planning Process. The BSMO will share the performance and capacity data gathered and the models developed by the contractor with EOS Capacity Management. EOS Capacity Management processes will timely identify mainframe computer operations and resource requirements for the modernization systems and submit them into the budget process.

Appendix I

Detailed Objective, Scope, and Methodology

The overall objective of this audit was to assess the efficiency and effectiveness of the Internal Revenue Service's computing center mainframe computer operations. To accomplish the objective, we:

I. Determined how Enterprise Operations Services (EOS) management ensures the mainframe computer operations accomplish their mission and goals by interviewing EOS management, reviewing management documents, and reviewing mainframe computer performance measurement reports. We also determined how many staff resources are needed for the computing centers' mainframe computer operations by interviewing Detroit Computing Center, Martinsburg Computing Center, and Tennessee Computing Center management; reviewing current organization charts, workload descriptions, production reports, and other management information; and comparing the numbers of employees and contractors to the workloads.

II. Determined what EOS management is doing to improve the efficiency and effectiveness of current computing center mainframe computer operations by interviewing EOS management and reviewing documents. We also determined whether consultants' recommendations were being addressed by comparing the consultants' reports to the EOS improvement projects.

III. Determined whether EOS management is effectively managing the integration of Business Systems Modernization (BSM) systems with current mainframe computer operations by reviewing the BSM Fiscal Year 2003 Release Management Plan, interviewing EOS management, reviewing transition management documents, reviewing transition readiness documents, and reviewing mainframe computer operations information.

Appendix II

Major Contributors to This Report

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Appendix III

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Appendix IV

Outcome Measures

This appendix presents detailed information on the measurable impact that our recommended corrective actions will have on tax administration. This benefit will be incorporated into our Semiannual Report to the Congress.

Type and Value of Outcome Measure:

Cost Savings, Funds Put to Better Use – $18,861,423 (Actual $5,854,761; Potential $13,006,662) (see page 4).

Methodology Used to Measure the Reported Benefit:

Comparison of the Martinsburg Computing Center (MCC) and Tennessee Computing Center (TCC) Consolidated Computing Environment (CCE) staffing identified 37 Internal Revenue Service (IRS) employee staff years and contractors that are not needed to complete the current CCE workloads. For purposes of determining the salaries, benefits, and contractor costs, we included 11 contractors and 26 IRS employee staff years. We included 11 contractors because the MCC employed this number for CCE operations and management has more flexibility in releasing them. In addition, during audit discussions, MCC and TCC management acknowledged that 17 IRS employee staff years and 12 contractors are not needed to complete current Master File[1] and other mainframe computer workloads. Table 3 summarizes the annual employee and contractor salaries, benefits, and other contractor cost savings.

[1] The Master File is the IRS' database that stores various types of taxpayer account information, including individual, business, and employee plans and exempt organizations data.

Table 3: Annual Employee and Contractor Salaries, Benefits, and Other Cost Savings

Source of the Savings	Number of IRS Employee Staff Years or Contractors	Salaries, Benefits, and Other Contractor Costs
IRS Employee Staff Years Identified by Comparison of MCC and TCC CCE Staffing	26	$1,823,380
Contractors Identified by Comparison of MCC and TCC CCE Staffing	11	$2,195,530
IRS Employee Staff Years Acknowledged by MCC Management (from Master File systems operations)	17	$610,375
Contractors Acknowledged by TCC Management (from other mainframe computer workloads)	12	$1,657,856
Total Annual Costs	66	$6,287,141

Source: Interviews with managers, IRS organization charts, and other management information.

To determine the potential IRS employee salary and benefit savings, we reviewed MCC organization charts and other management documents and Federal Government pay charts. We averaged the CCE employees' salaries and, based on IRS budget guidelines, added 25 percent to the average salary to calculate the average CCE employee salary and benefits. Details follow:

Number of IRS employees assigned to the CCE at the MCC	171
Total salary for 171 IRS employees (based on organization and Federal Government pay charts)	$9,593,713
Average salary ($9,593,713 divided by 171)	$56,104
25 percent of salary for benefits ($56,104 times .25)	$14,026
Average salary plus benefits for an IRS employee ($56,104 plus $14,026)	$70,130
Total salaries and benefits for 26 IRS employees ($70,130 times 26)	$1,823,380

To determine the contractor salary and other contractor cost savings, we reviewed management documents that listed the contractor costs. The information showed the following:

Total salaries and contractor costs for 11 contractors	$2,195,530

During audit discussions, MCC management acknowledged that 17 IRS employee staff years are not needed to complete Master File workloads. To determine the potential IRS employee salary and benefit savings, we reviewed MCC organization charts and other management documents and Federal Government pay charts. Based on IRS budget guidelines, we added 25 percent to the salary to calculate the employee salaries and benefits. Details follow:

Total salary for 17 IRS employees (based on organization and Federal Government pay charts)	$488,300
25 percent of salary for benefits ($488,300 times .25)	$122,075
Total salaries and benefits for 17 IRS employees ($488,300 plus $122,075)	$610,375

During audit discussions, TCC management acknowledged that 12 contractors are not needed to complete other mainframe computer workloads. To determine the contractor salary and other contractor cost savings, we reviewed management documents that listed the contractor costs. The information showed the following:

Total salaries and contractor costs for 12 contractors	$1,657,856

Distribution of savings between actual and potential costs savings:

As of March 2003, management released 14 contractors (2 at the MCC and 12 at the TCC) and provided documents showing the actual contractor salary and other costs that would be saved. The information showed the actual cost:

Actual contractor salary and other costs	$1,951,587

We subtracted the actual contractor cost from the total annual cost summarized in Table 3 to determine the potential cost savings. The potential annual cost savings was calculated as follows:

Total annual cost (from Table 3)	$6,287,141
Minus: Actual contractor costs	$1,951,587
Potential annual cost savings	$4,335,554

We multiplied the actual and potential cost savings by 3 years to determine the total actual and potential cost savings. Table 4 summarizes the total actual cost savings and total potential cost savings.

Table 4: Actual and Potential Cost Savings

	1 Year	3 Years
Actual Savings (14 Contractors Released)	$1,951,587	$5,854,761
Potential Savings	$4,335,554	$13,006,662
Total Savings	$6,287,141	$18,861,423

Source: Interviews with managers, IRS organization charts, and other management documents.

Appendix V

Management's Response to the Draft Report

DEPUTY COMMISSIONER

DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
WASHINGTON, D.C. 20224

RECEIVED
MAY 15 2003

MAY 12 2003

MEMORANDUM FOR ACTING TREASURY INSPECTOR GENERAL FOR TAX ADMINISTRATION

FROM: David A. Mader
Acting Deputy Commissioner for Modernization &
Chief Information Officer

SUBJECT: Response to Draft Audit Report - Mainframe Computer Operations Efficiency and Effectiveness Should Be Improved (Audit # 200220046)

Your report reinforces the IRS' ongoing commitment to continually improve our mainframe computer business processes and operations to more efficiently support the IRS mission and to provide high-quality customer service. Developing a long-term vision for the mainframe operations in our computing centers is critically important to managing our continually expanding mainframe computer workloads. While we do not expect increases in our operations and maintenance budgets, our computer centers will need to do more work to support new Business Systems Modernization (BSM) systems, annual tax law changes, and other smaller workloads essential to tax administration.

To ensure our mainframe operations are up to these ever increasing demands we have initiated several improvement projects to increase the efficiency of computing center operations and ensure that they are prepared to operate and maintain the modernized systems. We will also continue to review best practices of industry computer operations to measure labor efficiency gains from improvement projects.

We are continuing our strategic workforce planning and are distributing the workload performed in our computing centers using a competency-based model that maximizes the efficient use of these limited resources. This organizational approach will provide for three computing technology sites and two Enterprise Computing Centers (ECC) functioning as a single corporate entity. We will manage resources and workloads across geographic boundaries using a standard corporate infrastructure and a uniform operating environment (UOE). We anticipate that the UOE will flatten management layers, improve the span of control, and reduce technical and overhead support positions to reach target staffing levels.

Enterprise Operations Services will establish a task force to analyze existing measures and explore possibilities for future measures and automation of mainframe efficiency reports. We will include any new measures in the MITS Services Balanced Measures and computing center strategic planning and budget process. In addition, MITS Services will ensure that resources to operate modernization systems are timely identified and incorporated into the budget request. We are also establishing a process to ensure that we incorporate into the budget process all costs associated with transitioning modernization applications into the current processing environment.

We disagree with your measurable benefits because we believe you overstated projected excess staffing levels in some cases. We will have a better estimate of potential benefits as we implement the competency based organization.

Our attached corrective actions address your recommendations and our efforts to improve efficiency of mainframe computer operations. If you have any questions, please call me at (202) 622-6800, or Thomas Mulcahy, Manager, Program Oversight and Coordination Office, at (202) 283-6063.

Attachment

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Response to Draft Audit Report – Mainframe Computer Operations Efficiency and Effectiveness Should Be Improved (Audit # 200220046)

Recommendation #1
The Director, Enterprise Operations Services should improve strategic workforce planning by using industry average and best practice metrics to assess the CCE, Master File, BSM, and other mainframe computer workloads and determine the staffing levels needed for effective and efficient mainframe computer operations.

Corrective Action
Enterprise Operations Services has long practiced strategic planning for Consolidated Computing Environment (CCE), Master File, Business Systems Modernization (BSM), and other mainframe computer workloads. However, we are often unable to execute those plans due to circumstances beyond our control (hiring freezes, etc.), which result in staffing imbalances. We will continue to use industry best practices in our strategic planning; however, industry best practices do not always apply to a unique agency. Also, industry standards are not as prevalent in the CCE environment (much of it Unisys batch processing). We will include identified industry best practices in the design of Triplex/Competency Based Organization.

Implementation Date of Corrective Action #1

Completed: **Proposed:** January 1, 2004

Responsible Official for Corrective Action #1
The Deputy Commissioner for Modernization & Chief Information Officer M
Chief, Information Technology Services M:I
Director, Enterprise Operations Services M:I:EO

Monitoring Plan for Corrective Action #1
Enterprise Operations Services will continue to use the Triplex/Competency Based Organization (CBO) initiative as the foundation for realizing staffing efficiencies. The Director, Enterprise Operations Services has assigned an executive to ensure the new competency based organization is implemented in a timely manner. This executive will monitor the detailed action plan to implement CBO and authorize changes to ensure its success.

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Response to Draft Audit Report – Mainframe Computer Operations Efficiency and Effectiveness Should Be Improved (Audit # 200220046)

Recommendation #2
The Director, Enterprise Operations Services should initiate actions to reduce the number of employee staff years and contractors to the target staffing levels.

Corrective Action #2
All three IRS computing centers are migrating towards an Enterprise Computing Center (ECC) organizational structure that will be competency based instead of geography based. This Triplex/Uniform Operating Environment (UOE) will have all three computing centers operating as a single corporate entity. This new organizational structure will flatten existing layers of management, improve span of control, and reduce technical and overhead support positions.

EOS developed a detailed action plan with key milestones to implement the ECC. It was distributed throughout the EOS organization to track progress. In addition, EOS distributed a comprehensive communications plan to keep critical EOS managers and employees informed of upcoming organizational changes.

We will reduce the number of employee staff years and contractors to reach target staffing levels when the new organizational structure is implemented.

Implementation Date of Corrective Action #2

Completed: **Proposed:** January 1, 2005

Responsible Official for Corrective Action #2
The Deputy Commissioner for Modernization & Chief Information Officer M
Chief, Information Technology Services M:I
Director, Enterprise Operations Services M:I:EO

Monitoring Plan for Corrective Action #2
Director, Enterprise Operations Services has assigned an executive to ensure the new competency based organization is implemented in a timely manner. This executive will monitor the detailed action plan and authorize changes to the plan to ensure its success.

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Response to Draft Audit Report – Mainframe Computer Operations Efficiency and Effectiveness Should Be Improved (Audit # 200220046)

Recommendation #3
The Director, Enterprise Operations Services should develop automated mainframe computer operations efficiency measurement reports, and include the measures in the MITS Services Balanced measures and computing center strategic planning and budget process.

Corrective Action #3
The Resources Allocation and Measurement (RAM) organization collects data, and tracks and reports on specific measures associated with our computing center operations, which are included in the MITS Services Balanced Measures.

Enterprise Operations Services will establish a task force to analyze existing measures and explore possibilities for future measures and automation of mainframe efficiency reports. A detailed action plan with key milestones will be developed and distributed to track progress. We will request funding for outside resources to help us identify and implement industry best practices applicable to our operating environment.

Implementation Date for Corrective Action #3

Completed: **Proposed:** January 1, 2004

Responsible Official for Corrective Action #3
The Deputy Commissioner for Modernization & Chief Information Officer M
Chief, Information Technology Services M:I
Director, Enterprise Operations Services M:I:EO

Monitoring Plan for Corrective Action #3
Director, Enterprise Operations Services will ensure development of new measures and review their effectiveness during submission for the quarterly Business Performance Reviews (BPRs).

Attachment

Response to Draft Audit Report – Mainframe Computer Operations Efficiency and Effectiveness Should Be Improved (Audit # 200220046)

Recommendation #4
The Deputy Commissioner for Modernization & Chief Information Officer should ensure mainframe computer operation and resource requirements for the modernization systems are timely identified and incorporated in the EOS budget request.

Corrective Action #4
The Director, Enterprise Operations Services (EOS) will ensure EOS collaborates with BSMO/ISS/Infrastructure Engineering (IE) to implement the End-to-End Performance Engineering and Capacity Planning Process. BSMO will share the performance and capacity data gathered and the models developed by the PRIME with EOS Capacity Management. EOS Capacity Management processes will timely identify mainframe computer operations and resource requirements for the modernization systems and submit them into the budget process.

Implementation Date of Corrective Action #4

Completed: **Proposed:** October 1, 2003

Responsible Official for Corrective Action #4
The Deputy Commissioner for Modernization & Chief Information Officer M
Chief, Information Technology Services M:I
Director, Enterprise Operations Services M:I:EO

Monitoring Plan for Corrective Action #4
After the End-to-End Performance Engineering and Capacity Planning Process is in place, Enterprise Operations Services will work with BSMO/PRIME to monitor the effectiveness of the process by:

- Reviewing and updating the Performance Engineering and Capacity Planning Process to include needed changes to the Process document itself or to request additional changes to the Enterprise Life Cycle (ELC) to support the Plan
- Integrating modernization resource requirements into the IRS Capacity Plan